**Table S5.** Plasmids utilized in this work. Ap, ampicillin; Sm, spectinomycin; Sp, Streptomycin; Km, kanamycin

| Plasmid | Resist. | Description | Ref. |
|---|---|---|---|
| pCJS48 | Ap | Plasmid constructed by cloning in the pSparK-I vector (Invitrogen) a PCR fragment amplified with primers GFPMUT2-1F and GFPMUT2-2R encompassing the ORF of GFP-mut2 | This work |
| pCJS49 | Sm Sp | Plasmid constructed by cloning a PCR fragment that contains the *Anabaena* P*petE* promoter (generated with primers PPETE-3F and PPETE-2R) between sites EcoRI and StuI of pCJS48. | This work |
| pCJS51 | Sm Sp | Plasmid constructed by cloning a PCR fragment containing the P*petE-gfpmut2* fusion (generated with primers PCJS49-1F and PCJS49-1R) in the EcoRI site of vector pCSV3 | This work |
| pCJS52 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-ASPRS-1F and A7120-ASPRS-1R ) encompassing the ORF encoding AspRS in *Anabaena*. Suitable for the controlled expression of the GFP:-AspRS fusion protein in *Anabaena* | This work |
| pCJS53 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-METRS-1F and A7120-METRS-1R) encompassing the ORF encoding MetRS in *Anabaena*. Suitable for the controlled expression of the GFP-MetRS fusion protein in *Anabaena* | This work |
| pCJS55 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-GLURS-2F and A7120-GLURS-3R) encompassing the ORF encoding GluRS in *Anabaena*. Suitable for the controlled expression of the GFP-GluRS fusion protein in *Anabaena* | This work |
| pCJS56 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-ARGRS-1F and A7120-ARGRS-1R) encompassing the ORF encoding ArgRS in *Anabaena*. Suitable for the controlled expression of the GFP-ArgRS fusion protein in *Anabaena* | This work |
| pCJS57 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-PHERSALPHA-1F and A7120-PHERSALPHA-1R) encompassing the ORF encoding the alpha subunit of PheRS in *Anabaena*. Suitable for the controlled expression of the GFP-PheRS(α) fusion protein in *Anabaena* | This work |
| pCJS58 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-CYSRS-1F and A7120-CYSRS-1R) encompassing the ORF encoding the CysRS in *Anabaena*. Suitable for the controlled expression of the GFP-CysRS fusion protein in *Anabaena* | This work |
| pCJS59 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-ILERS-1F and A7120-ILERS-1R) encompassing the ORF encoding the IleRS in *Anabaena*. Suitable for the controlled expression of the GFP-IleRS fusion protein in *Anabaena* | This work |
| pCJS60 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-LEURS-1F and A7120-LEURS-1R) encompassing the ORF encoding the LeuRS in *Anabaena*. Suitable for the controlled expression of the GFP-LeuRS fusion protein in *Anabaena* | This work |
| pCJS61 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-TRPRS-1F and A7120-TRPRS-1R) encompassing the ORF encoding the TrpRS in *Anabaena*. Suitable for the controlled expression of the GFP-TrpRS fusion protein in *Anabaena* | This work |
| pCJS62 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-TYRRS-1F and A7120-TYRRS-1R) encompassing the ORF encoding the TyrRS in *Anabaena*. Suitable for the controlled expression of the GFP-TyrRS fusion protein in *Anabaena* | This work |
| pCJS63 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-HISRS-1F and A7120-HISRS-1R) encompassing the ORF encoding the HisRS in *Anabaena*. Suitable for the controlled expression of the GFP-HisRS fusion protein in *Anabaena* | This work |
| pCJS64 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-THRRS1-1F and A7120-THRRS1-1R) encompassing the ORF encoding T1 in *Anabaena*. Suitable for the controlled expression of the GFP-T1 fusion protein in *Anabaena* | This work |
| pCJS65 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-PRORS-1F and A7120-PRORS-1R) encompassing the ORF encoding ProRS in *Anabaena*. Suitable for the controlled expression of the GFP-ProRS fusion protein in *Anabaena* | This work |
| pCJS66 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-SERRS-1F and A7120-SERRS-1R) encompassing the ORF encoding SerRS in *Anabaena*. Suitable for the controlled expression of the GFP-SerRS fusion protein in *Anabaena* | This work |
| pCJS67 | Sm Sp | Plasmid containing a PCR fragment encompassing the *Anabaena* sp. PCC 7120 *argRSC* ORF amplified with primers A7120-argRSC-7F y A7120-argRSC-7R and cloned in the BamHI site of pCJS51. | This work |
| pCJS68 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-THRRS2-4F and A7120-THRRS2-6R) encompassing the ORF encoding T2 in *Anabaena*. Suitable for the controlled expression of the GFP-T2 fusion protein in *Anabaena* | This work |
| pCJS69 | Sm Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-ASNRS-1F and A7120-ASNRS-1R) encompassing the ORF encoding AsnRS in *Anabaena*. Suitable for the controlled expression of the GFP-AsnRS fusion protein in *Anabaena* | This work |
| | Sm | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment | |

| | | | |
|---|---|---|---|
| pCJS70 | Sp | (generated with primers A7120-LYSRS-1F and A7120-LYSRS-1R) encompassing the ORF encoding LysRS in *Anabaena*. Suitable for the controlled expression of the GFP-LysRS fusion protein in *Anabaena* | This work |
| pCJS71 | Sm<br>Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-ALARS-1F and A7120-ALARS-1R) encompassing the ORF encoding AlaRS in *Anabaena*. Suitable for the controlled expression of the GFP-AlaRS fusion protein in *Anabaena* | This work |
| pCJS72 | Sm<br>Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-GLYRSALPHA-1F and A7120-GLYRSALPHA-1R) encompassing the ORF encoding the alpha subunit of GlyRS in *Anabaena*. Suitable for the controlled expression of the GFP-GlyRS(α) fusion protein in *Anabaena* | This work |
| pCJS73 | Sm<br>Sp | Plásmido que contiene un fragmento de PCR que comprende 750 pb del gen *argRSC* de *Anabaen*a sp. PCC 7120, amplificado con los cebadores A7120-argRSC-8F y A7120-argRSC-8R, clonado en el sitio XhoI de pCJS51. | This work |
| pCJS74 | Sm<br>Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers A7120-VALRS-1F and A7120-VALRS-1R) encompassing the ORF encoding ValRS in *Anabaena*. Suitable for the controlled expression of the GFP-ValRS fusion protein in *Anabaena* | This work |
| pCJS83 | Sm<br>Sp | Plasmid derived of pCJS51 containing between the BamHI and XhoI sites a PCR fragment (generated with primers LY8106-LEURS-1F and LY8106-LEURS-1R) encompassing the ORF encoding LeuRS in *Lyngbya* sp. PCC 8106. Suitable for the controlled expression of the GFP-(Lyngbya)LeuRS fusion protein in *Anabaena* | This work |
| pCE50 | Km | Plasmid for the controlled expression of ValRS-6His in *Escherichia coli* C41(DE3) | Olmedo-Verd et al, 2011 |
| pCE53 | Km | Plasmid for the controlled expression of ValRS$\Delta^{C}$-6His in *Escherichia coli* C41(DE3) | Olmedo-Verd et al, 2011 |
| pCE56 | Sm<br>Sp | Plasmid for the controlled expression of ValRS-6His in *Anabaena* | Olmedo-Verd et al, 2011 |
| pCE57 | Sm<br>Sp | Plasmid for the controlled expression of ValRS-Gfp in *Anabaena* | Olmedo-Verd et al, 2011 |
| pCE58 | Sm<br>Sp | Plasmid for the controlled expression of ValRS$\Delta^{C}$-6His GFP in *Anabaena* | Olmedo-Verd et al, 2011 |
| pCE59 | Sm<br>Sp | Plasmid for the controlled expression of ValRS$\Delta^{C}$-GFP in *Anabaena* | Olmedo-Verd et al, 2011 |